# Trust in AI and Its Role in the Acceptance of AI Technologies

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## Abstract

Abstract As AI-enhanced technologies become common in a variety of domains, there is an increasing need to define and examine the trust that users have in such technologies. Given the progress in the development of AI, a correspondingly sophisticated understanding of trust in the technology is required. This paper addresses this need by explaining the role of trust in the intention to use AI technologies. Study 1 examined the role of trust in the use of AI voice assistants based on survey responses from college students. A path analysis confirmed that trust had a significant effect the on intention to use AI, which operated through perceived usefulness and participants' attitude toward voice assistants. In Study 2, using data from a representative sample of the U.S. population, different dimensions of trust were examined using exploratory factor analysis, which yielded two dimensions: human-like trust and functionality trust. The results of the path analyses from Study 1 were replicated in Study 2, confirming the indirect effect of trust and the effects of perceived usefulness, ease of use, and attitude on intention to use. Further, both dimensions of trust shared a similar pattern of effects within the model, with functionality-related trust exhibiting a greater total impact on usage intention than human-like trust. Overall, the role of trust in the acceptance of AI technologies was significant across both studies. This research contributes to the advancement and application of the TAM in AI-related applications and offers a multidimensional measure of trust that can be utilized in the future study of trustworthy AI.